Fear of COVID-19 among critical care nurses of public hospitals in Lahore: empirical evidence during third wave

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Abstract

The world has seen a pandemic that disrupted life. Till now there are aftershocks of COVID-19 such as Omicron instilling fear among individuals. Healthcare staff is on alert specifically the nurses have suffered a lot mentally due to this issue by developing fatigue. The study was conducted during the deadly 3rd COVID-19 wave. The data were collected by developing the questionnaire of the previously validated measures related to the variables under study from nurses working in the intensive care unit, critical care unit, and floor wards of COVID-19 at Services Hospital, Lahore. A total of 140 questionnaires were used for data analysis. The study used Statistical Package for Social Sciences for frequency and descriptive statistics. Whereas the outcomes of fear of COVID-19 were assessed by using the latest Smart Partial Least Squares software which allows to assess the complex research frameworks. The results of the study revealed that the fear of COVID-19 results in poor quality of life among nurses and fatigue. Resilience among nurses can reduce the negative consequences but did not get statistical support.

Introduction

The world has been changed due to the pandemic situation of COVID-19 that affected countries globally, after the primary epidemic in Wuhan, China[1] due to which globally on May 20th, 2021, the affirmed instances of Coronavirus (COVID-19) recorded 84,780,171 with 1,853,525 deaths. In Pakistan, the confirmed cases were 893,461, with 20,089 deaths.[2] The Government of Pakistan took a quick decision in the form of a complete lockdown in the country, to stop the spread of the virus. All educational institutes, universities, and public and private schools are completely closed. The Government applied smart and micro-smart lockdowns to prevent the spreading of the virus. However, 3rd wave started in March 2021 day by day new affirmed cases and death cases rising rapidly. The third wave essentially influenced the areas of Punjab and Khyber Pakhtunkhwa.

The deadly disease was not just caused by a high passing rate from the viral contamination yet additionally disturbed mental relaxation.[3] Notably, the healthcare professionals remained on duty since they work under high tense climate resulting in emotional wellness issues.[4] In Emergency and Outdoor departments the healthcare staff is at high risk instead of other departments[5] as they have to deal with the patients. More importantly, nurses are being the frontline employees of healthcare and are confronted with the massive difficulties caused by COVID-19[6] for instance, the death rate due to the COVID-19 may disturb them mentally[7] because they are the ones who have to deal with the patient first.

Notably, COVID-19 presence resulted in mental illness and fear of getting affected by the virus[8-9] as they directly provide patient care to the patients affected by COVID-19 due to the shortage of PPE (Personal protective equipment). Additionally, higher fear of COVID-19 was found to reduce mental well-being and higher emotional suffering.[10] In other words, nurses are found at the edge of developing higher fatigue while treating patients affected by COVID-19. It is supported by the previous study which reported that COVID-19 resulted in mental health issues for instance, fatigue and reduced professional quality of life,[6] nervousness, melancholy, and fanatical habitual indications among nurses.[11] Fear of COVID-19 also results in decreased professional quality of life among nurses. Notably, nurses may encounter an undeniable degree of fatigue[12] due to the decreased professional quality of life as they are always triggered by the fear of getting affected by COVID-19 while serving such patients. In such circumstances, resilience emerges to be the solution for increasing the quality of life along with decreasing fatigue among nurses.

Resilience denotes the ability of an individual to manage adversity and positively respond to it without having long-lasting mental illness or stress.[13] The fatigue could be reduced by developing resilience because it helps to fight tension[14] and adversity.[15] Besides nursing is a challenging profession, it requires a great deal of dedication, determination, and devotion for a better tomorrow. Accordingly, nurses' ability to bounce back in difficult times is necessary to ensure their superior professional quality of life along with decreasing their fatigue. Along these lines, the capacity of nursing understudies to bounce back or individual versatility is fundamental to secure inner control, sympathy, helpful self-idea, association, and good faith in their regular difficulties. So it becomes necessary to address these issues so they can be prevented as the healthcare frontline staff cannot be sent home on leave. Therefore, the study considered that fatigue occurs due to Fear of COVID-19 since it damages the professional quality of life which further can be reduced by developing resilience among

nurses.

Materials and Methods

Population and sample size

The target population was the nurses both males and females, working in Services Hospital, Lahore. Data were collected by using convenience sampling from the nurses working the COVID-19 Intensive care units (ICU), Critical care units (CCU), and ward floor of the Services Hospital, Lahore. As the population of the study is finite, the Yamane[16] formula was used[17] to determine the minimum sample size. According to the formula, the sample size for the present study should be 150 at ±5%. Below is the formula we used:

$$n = \frac{N}{1 + N(e)^2}$$

In this formula n = Sample size; N = Total population; e = Precision level

$$n = \frac{240}{1 + 240(.05)}$$

As per the calculations, the minimum sample for the study is 150 respondents. However, to address the non-response bias sample size was inflated by 20%. Previously it is recommended to inflate the sample size to attain the minimum required responses.[18] Therefore, the sample size of the present study is 180 respondents. According to Hair *et al.*[19] 100 is the minimum sample size when there are five or fewer constructs in the model.

Questionnaire and measurement

Data were collected by using the questionnaire. It contained questions related to the demography of the respondents and

variables as well. All of the questions were adapted from the previous studies, the details of which are as follows; Fear of COVID-19 was assessed by using a 7-item measure. COVID-related quality of life was measured by a 12-item measure. It is the brief version adapted from the World Health Organization-Quality of Life brief scale.[20] The scale used for quality of life was modified by adding the following at the start of each item "COVID-19 pandemic". For instance, the COVID-19 pandemic disturbed your quality of life. To measure the resilience among the nurses 6-item brief resilience questionnaire was adapted.[14] The scale of resilience was adopted as its original version. Finally, fatigue among nurses was measured by 10 items.[21] Point 5-Likert scale used for all the measures ranging from 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The questionnaire was then sent to two nursing professionals and an academic expert to see

Table 1. Descriptive statistics and correlation.

	Mean	SD	FC	QL	Ft	RS	Skewness	Kurtosis
FC	3.20	0.779	1	-	-	-	-0.574	0.153
QL	3.72	0.607	0.410**	1	-	-	-1.320	2.666
Ft	3.43	0.663	0.455**	0.554**	1	-	-0.924	0.655
RS	3.08	0.889	0.295**	0.277	0.202**	1	-0.469	-0.264

Table 2. Confirmatory factor analysis.

Constructs	Items	Loadings	Alpha	rho_A	CR	AVE
Fear of COVID-19	FC1	0.717	0.819	0.821	0.868	0.522
	FC2	0.72				
	FC3	0.74				
	FC4	0.72				
	FC6	0.692				
	FC7	0.746				
Fatigue	Ft1	0.717	0.886	0.888	0.909	0.555
	Ft2	0.759				
	Ft3	0.699				
	Ft5	0.785				
	Ft6	0.727				
	Ft7	0.784				
	Ft8	0.751				
	Ft9	0.735				
Quality of life	QL1	0.776	0.866	0.874	0.894	0.514
	QL10	0.676				
	QL11	0.724				
	QL2	0.76				
	QL3	0.726				
	QL4	0.666				
	QL8	0.723				
	QL9	0.675				
Resilience	RS1	0.739	0.878	0.912	0.904	0.612
	RS2	0.881				
	RS3	0.775				
	RS4	0.808				
	RS5	0.8				
	RS6	0.674				

whether it matches the context of the study. Few changes were made and A total of 180 questionnaires were distributed among the nurses working the COVID-19-related wards floors, ICU, and CCU wards as well. A total of 140 questionnaires were collected from the respondents.

Ethical considerations

All of the participants were informed about their volunteer participation in the study without any reward or gift. They were not forced to participate in the study as well. Additionally, all of the questionnaires were designed in such a way that they do not reveal the participant's identity to the researcher or others (complete secrecy of the data collected). It was ensured that the data collected would be used for research purposes only. All of the necessary permissions were obtained from the Superior College of Nursing as well.

Results

Demographic profile of the respondents

The study sample comprised 140 respondents working in the critical care units and ward floors with COVID-19. Males constituted 15% and females constituted 85% of the sample size. The majority of the sample of the study belonged to the age group of 21-30 years (54.3%). Whereas, 32.1%, 12.1%, and only 1.4% of the respondents belonged to the 31-40 years, 41-50years and 51-60 years of age groups respectively. Moreover, 62.1% and 37.9% of the respondents belonged to Islam and Christianity. The majority of the respondents were having BPS 16 (87.9%) and BPS 17 (21.1%). Regarding duties 41.1%, 33.6%, and 25% of the respondents were assigned to provide services at COVID-ICU, COVID-ISOLATION, and COVID-WARDFLOOR respectively. Most of the respondents had experience working as a nurse from 4 years to 6 years (27.9%). Whereas only 17.1% of nurses were having

more than 12 years of experience.

Descriptive statistics and correlation

The following Table 1 shows the descriptive statistics and correlation. As per the findings reported in Table 1 mean values for the variables namely; fear of COVID-19, quality of life, fatigue and nurse resilience were 3.20, 3.72, 3.43, and 3.08 respectively. Additionally, the table also shows the values of skewness and kurtosis. Notably, all of the values for skewness and kurtosis ranged from +2 to -2 which establishes the data normality. All of the variables were found to be significantly correlated with the highest correlation between fatigue and quality of life valued at 0.557.

Confirmatory factor analysis

Tables 2, and 3 shows the results for the confirmatory factor analysis. First of all, Cronbach's Alpha values for all the variables are greater than 0.7 indicating reliability. Secondly, the values of the factor loadings are greater than 0.5 along with Average Variance Extracted (AVE) greater than 0.50 indicating the convergent validity of the constructs. Finally, the results also show the value of the Composite Reliability (CR) for the variables which is greater than 0.8 indicating the reliability.

Discriminant validity

Conducting cross-sectional research where the relationship between the variables it becomes necessary to assess the discriminant validity to assure that variables are different from each other. Accordingly, the present study has used the Heterotrait-Monotrait Correlation Ratio (HTMT) to

assess the discriminant validity. The values of HTMT for all the variables less than 0.85 indicates that all of the constructs are different.[22] As per the findings reported in Table 3 all of the values are less than 0.85 established the discriminant validity.

Path coefficients

The following Table 4 shows the values for the path coefficients, explained variance, and collinearity statistics. As per the results of the study R^2 for fear of COVID-19 regarding fatigue is valued at 0.346, indicating that fear of COVID-19 has captured the 34.6% variance in fatigue while it captured the 22.2% variance in quality of life of nurses. Additionally, the VIF value for variables ranged between 1.088 and 1.195 indicating no multi-collinearity issue in the data.

Moreover, the table also shows the path coefficients for the relationship between the variables. As per the results reported in Table 4, fear of COVID-19 was found to positively influence both fatigues among nurses (β=0.251, t=2.377, p=0.017) and quality of life (β= 0.332, t=3.969, p=0.000) indicating that one unit increase in fear of COVID-19 will increase in poor quality of life and fatigue among nurses working at COVID-19 ICU, ward floors and isolations. Additionally, the poor quality of life among nurses was found to be a signification mediator between the fear of COVID-19 and fatigue among nurses (β= 0.146, t=2.512, p=0.012). Whereas resilience was found too weak in the relationship between the fear of COVID-19 and quality of life among nurses but did not find statistical support (β= -

Table 3. HTMT.

	FOC	Ft	QOL	RS
FOC	-			
Ft	0.493	-		
QOL	0.446	0.589	-	
RS	0.356	0.238	0.348	-

Table 4. Path coefficients

Hypotheses	Standardized estimates			Significance	Decision	Explained variance	Collinearity
	β	SD	t value	p value	S/US	R²	VIF
FOC -> Ft	0.251	0.106	2.377	0.017	S	0.346	1.195
FOC -> QOL	0.332	0.084	3.969	0	S	0.222	1.088
QOL -> Ft	0.44	0.097	4.552	0	S	-	1.195
FOC -> QOL -> Ft	0.146	0.058	2.512	0.012	S	-	-
FOC*RS -> QOL	-0.019	0.117	0.163	0.87	US	-	-

S, Supported; US, Unsupported; FOC, Fear of COVID-19; QOL, Quality of life; Ft, Fatigue; RS, Resilience.

0.019, t=0.163, p=0.87).

Discussion

Nurses play a significant role by providing humanitarian services to our healthcare centers.[23] They face different adversities at the workplace such as emotional labor, deaths, violence, harassment, etc. The rise of some critical social, psychological, and economic impacts globally due to the COVID-19 pandemic.[24] It has been proven by recent studies that the symptoms of anxiety and depression are getting more common in people[25] as well as in nurses. Considering the importance of the issue the aim of the study was to examine the outcomes of fear of COVID-19 among nurses who are providing healthcare services to the COVID-19 affected patients during the 3rd wave in services hospitals of Pakistan.

It was hypothesized that the fear of COVID-19 among nurses will result in a poor quality of life. In support of our hypothesis, the study results revealed a positive influence of COVID-19 on the poor quality of life among nurses. It may be the scenario that a nurse who is doing duty in the COVID-19 ward ICU or isolation or ward floor may get worried about getting affected by COVID-19 or maybe worried to communicate the infection to his/her family members at home after duty is over. Healthcare workers were found to have depression, anxiety, and low well-being during COVID-19, especially, the workers working in ICUs[26] because the pandemic changed the structure of ICUs as compared to other departments. And, approximately 10% of front-line professionals were found to have stress.[27] On the other hand, COVID-19 has resulted in different changes in the daily life of individuals due to lockdowns and strict compliance with the Standard Operating Procedures (SOPs).[28] Accordingly, the study has provided evidence of the influence of the fear of COVID-19 and fatigue among nurses.

Additionally, the study results also supported the relationship between poor quality of life and fatigue among nurses. Poor quality of life tends positively drive fatigue among nurses.[29-30] Previously available empirical evidence also supports this assertion that COVID-19 results in poor quality of life,[31-33] for instance,[34] contended that COVID-19 has affected the quality of life among nurse students resulting in poor well-being and mental health as well. The results not only supported the hypothesis but also enriched the empirical evidence from the nurse practitioners' perspective serving the COVID-19 affected patients. Results of the study revealed that the poor

quality of life among nurses positively mediates the relationship between the fear of COVID-19 and fatigue among nurses. These results are consistent with the previous studies, for instance, previous evidence has put forward that the quality of life of nurse students has been adversely impacted by COVID-19 resulting in negative consequences such as stress.[35] The study results also revealed that the poor quality of life among the nurses results in fatigue among them due to COVID-19. Finally, the study also revealed that resilience among nurses tends to weaken the relationship between the fear of COVID-19 and poor quality of life. But it did not obtain statistical support and the reason may be attributed to the fact that all of them are not fully aware of resilience or data were collected from only a single hospital.

Limitations and future directions

The study has accomplished its objectives, but still, some limitations need to be addressed and serve as a future research area. For instance, the study has examined the influence of the fear of COVID-19 on mental health by considering fatigue but due to its cross-sectional nature, it did not result in the causality. So future studies are suggested to consider the longitudinal research design. The sample of the study was dominated by female participants, thus, future studies while considering more inclusion of male nurses will enrich the insights into the fear of COVID-19. Notably, we are still living in COVID-19 affected community and since the Omicron is there, future studies may explore the role of media in creating fear among the healthcare staff.

Conclusions

Based on the results of the study it is stated that the nurses reported fear of COVID-19 while caring for the patients infected with COVID-19. They feared getting infected and carrying that infection to their family members as well. Additionally, results also revealed that it triggers fatigue. Considering the limitations of the study, the findings demonstrate that the pandemic has exerted a negative influence on nurses in the form of fear of either getting infected or carrying the infection to their family members, ultimately, having a poor quality of life. Therefore, the frontline nurses dealing with the infected patients should be provided with the appropriate safety equipment by the hospitals so they may feel safe and develop less fatigue. The findings also demonstrate that the negative outcomes can be tacked or reduced by developing positive

personality attributes such as resilience. So hospitals should provide training to develop adaptability among nurses to enrich fearless and safe patient care. The study is not establishing any cause-and-effect relationship since it is not an experimental research study, so the conclusions must be made by considering this fact.

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